The National Study of Chemical Residues in Lake Fish Tissue

Blaine D. Snyder[1], Leanne Stahl[2], Amanda Richardson[1], and Jennifer Pitt[1]

[1] Tetra Tech, Inc., 10045 Red Run Blvd., Suite 110, Owings Mills, Maryland 21117
[2] U.S. EPA, OW/OST, Mail Code 4305T, 1200 Pennsylvania Avenue N.W., Washington, D.C. 20460

Biographical Sketch of Authors

Blaine Snyder is employed as a principal scientist and project manager at the Baltimore, Maryland office of Tetra Tech, Inc. He is an American Fisheries Society Certified Fisheries Scientist, specializing in the design, implementation and interpretation of environmental impact assessments and aquatic ecological investigations. Mr. Snyder has been involved with the National Study of Chemical Residues in Lake Fish Tissue since the preliminary planning stages, and currently serves as the study's National Sampling Support Manager. Together with coauthors Amanda Richardson and Jennifer Pitt, he has supported the U. S. EPA in the development of the study design, quality assurance plan, and sampling methods, and continues to coordinate all national sample collection activities.

Leanne Stahl is an environmental scientist in the Office of Science and Technology within the U.S. Environmental Protection Agency's Office of Water with training and experience as a fisheries biologist. Since 1999, she has served as the project manager of the National Study of Chemical Residues in Lake Fish Tissue, moving the project from its planning phase into full implementation. Leanne moved to EPA's Office of Water from the National Oceanic and Atmospheric Administration in 1990 and has worked in a variety of water programs over the last 12 years.

Abstract

The U.S. Environmental Protection Agency is conducting a screening-level study to estimate the national distribution of selected persistent, bioaccumulative and toxic chemical residues in fish tissue from lakes and reservoirs of the continental United States. This four-year study will define national background levels for 265 chemicals in fish, establish a baseline to track progress in pollution control activities, and identify areas where contaminant levels are high enough to warrant further investigation.

The National Study of Chemical Residues in Lake Fish Tissue (or National Fish Tissue Study) was initiated in 1998 as a priority activity under EPA's Persistent, Bioaccumulative and Toxic Chemicals (PBT) Initiative. This study supports that initiative and is important because it is the first national fish tissue survey to be based on a random sampling design, which will allow EPA to develop national estimates of the mean levels of PBT chemicals in fish tissue. A total of 500 randomly-selected lakes will be sampled during the course of the study (i.e., approximately 125 sampling locations, annually). The target lakes are stratified by size, and 80-90 lakes will be sampled in each of six categories (1-5, 5-10, 10-50, 50-500, 500-5000 and >5000 hectares).

Sampling teams are applying consistent methods nationwide, to collect composites of one predator species and one bottom-dwelling species at each lake. Composites consist of five adult fish of similar size, and analyses consist of edible tissue (fillets) for predators, and whole-body analysis for bottom-dwellers. Results from this national screening-level study will provide data on the largest set of PBT chemicals ever studied in fish. Fish tissue samples are being analyzed for 2 metals, 17 dioxins and furans, 159 PCB congeners, 43 pesticides, and 40 other organics, representing a suite of chemicals that could affect human and/or ecological health associated with our nation's lakes and reservoirs.